



---

# **12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)**

Northeast New Territories Landfill Extension (NENTX) | Contract No. EP/SP/77/15

0092/22/ED/0398 02 | 13 July 2023

Formal Submission

Veolia Environmental Services Hong Kong Ltd.



Our Ref.: CL/91823/0658-VES  
Date: 25 August 2023

**By Email**

Veolia Environmental Services Hong Kong Limited  
40/F, One Taikoo Place  
979 King's Road  
Quarry Bay  
Hong Kong

Attn.: Mr. Colin Mitchell

**Meinhardt Infrastructure and  
Environment Ltd**  
邁進基建環保工程顧問有限公司

10/F Genesis  
33-35 Wong Chuk Hang Road  
Hong Kong  
香港黃竹坑道33-35號  
創協坊10樓

Tel 電話: +852 2858 0738  
Fax 傳真: +852 2540 1580

mail@meinhardt.com.hk  
www.meinhardt-china.com  
www.meinhardtgroup.com

Dear Sir

Re: Contract No. EP/SP/77/15  
North-East New Territories Landfill Extension (NENTX)  
12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)

I refer to Conditions 2.8 and 2.10 under Environmental Permit No. EP-292/2007 and Conditions 2.6 and 2.8 under Further Environmental Permit No. FEP-01/292/2007, regarding the submission of Post-Translocation Monitoring Report. I hereby verify the captioned "12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)" dated 13 July 2023.

Should you have any queries, please do not hesitate to contact the undersigned at 2859 5409.

Yours faithfully  
MEINHARDT INFRASTRUCTURE AND ENVIRONMENT LTD



Claudine Lee  
Independent Environmental Checker



**Aurecon Hong Kong Limited**  
Unit 1608, 16/F, Tower B,  
Manulife Financial Centre,  
223 – 231 Wai Yip Street, Kwun Tong  
Hong Kong

**T** +852 3664 6888  
**F** +852 3664 6999  
**E** hongkong@aurecongroup.com  
**W** aurecongroup.com



Ref: P521530-0000-REV-NN-0068

**By Email**

06 July 2023

**Meinhardt Infrastructure & Environment Ltd.**  
**10/F Genesis**  
**33-35 Wong Chuk Hand Road**  
**Hong Kong**

**Attn: Ms. Claudine Lee,**

**Dear Claudine,**

**Re: Contract No. EP/SP/77/15**  
**Northeast New Territories Landfill Extension**  
**Submission of 12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)**

---

In accordance with the requirement specified in Conditions 2.8 and 2.10 of Environmental Permit No. EP-292/2007 and Conditions 2.6 and 2.8 of Further Environmental Permit No. FEP-01/292/2007, we are pleased to submit the certified "12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)" dated on 13 July 2023 for your verification.

Should you require any further information or clarification, please do not hesitate to contact the undersigned or our Mr. Keith Chau on 3664 6788.

Yours faithfully,  
For and on behalf of  
Aurecon Hong Kong Limited

A handwritten signature in blue ink, appearing to read "Fredrick Leong", is written over the printed name.

**Fredrick Leong**  
**Environmental Team Leader**

Encl.

1. 12<sup>th</sup> Post-Translocation Monitoring Report (July 2023)

cc.

1. IEC - Ms. Claudine Lee (By email: claudinelee@meinhardt.com.hk)
2. IEC Representative – Ms. Echo Hung (By email: echohung@meinhardt.com.hk)

# Document Control

## Document Information

Project Title	Northeast New Territories Landfill Extension (NENTX)   Contract No. EP/SP/77/15
Document Title	12 <sup>th</sup> Post-Translocation Monitoring Report (July 2023)
Fugro Project No.	0092-22
Fugro Document No.	0092/22/ED/0398
Issue Number	02
Issue Status	Formal Submission
Fugro Legal Entity	Fugro Technical Services Limited
Issuing Office Address	13/F, Fugro House – KCC2, 1 Kwai On Rd, Kwai Chung, NT, Hong Kong

## Client Information

Client	Veolia Environmental Services Hong Kong Ltd.
Client Address	40/F, One Taikoo Place, Taikoo Place, 979 King’s Road, Quarry Bay, Hong Kong
Client Contact	Mr. William Wan
Client Document No.	NENTX-FUG-RP-E-EM-015-I01

## Document History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
01	13 July 2023	Draft	Awaiting Client’s Comments	AY	FN	CY
02	13 July 2023	Formal Submission	For ET’s certification and IEC’s verification	AY	FN	CY

## Project Team

Initials	Name	Role
CY	Colin Yung	Project Manager
FN	Fenelyn Nabuab	Ecologist
SMR	Sheila Marie Rabi	GIS Specialist/ Ecologist
AY	Andy Yuen	Assistant Environmental Consultant
IEC	Meinhardt (Hong Kong) Limited	Independent Environmental Checker
ET	Aurecon (Hong Kong) Limited	Environmental Team

## Contents

<b>1.</b>	<b>Introduction</b>	<b>1</b>
1.2	Purpose of this Document	1
1.3	Structure of the Report	1
<b>2.</b>	<b>Mark-Recapture Methodology</b>	<b>2</b>
2.2	The Monitoring Area	2
2.3	Personnel	3
2.4	Mark-Recapture Activity	3
2.4.2	Hand Netting	3
2.4.3	Kick-netting	4
2.4.4	Direct Observation	4
2.4.5	Marking	5
<b>3.</b>	<b>Survey Results</b>	<b>5</b>
<b>4.</b>	<b>Post-translocation Monitoring Schedule and Area</b>	<b>6</b>
<b>5.</b>	<b>Summary and Conclusion</b>	<b>6</b>
<b>6.</b>	<b>References</b>	<b>6</b>

## Appendices

<b>Appendix A</b>	<b>Monitoring Area</b>	<b>7</b>
<b>Appendix B</b>	<b>Special Permit under Cap. 170</b>	<b>9</b>
<b>Appendix C</b>	<b>Fieldwork Datasheet</b>	<b>13</b>

## List of Plates in the Main Text

Photo 2.1:	Section of the monitoring area with low gradient and low water flow	2
Photo 2.2:	Hand netting at a potential habitat (vegetation) along the watercourse	3
Photo 2.3:	Surveyor kick-netting the substrate and checking the net's contents	4
Photo 2.4:	Surveyor searching for <i>S. zanklon</i> on potential hiding space (under vegetation) along the watercourse	4
Photo 3.1:	Site photos of the monitoring area	5
Photo 3.2:	Site photos of the monitoring area further down stream	5

# 1. Introduction

- 1.1.1 The North East New Territories Landfill Extension (the NENTX Project) is a designated project. The Environmental Impact Assessment (EIA) Report was approved with conditions on 20 September 2007 (AEIAR-111/2007) and the Environmental Permit (EP) EP-292/2007 (the "EP") was issued on 26 November 2007. Additionally, a Further Environmental Permit FEP-01/292/2007 (the "FEP") was also issued under the EIA Ordinance on 28 April 2022.
- 1.1.2 In order to fulfil FEP conditions 2.6 and 2.8 on the post-translocation monitoring of the endemic freshwater crab *Somanniathelphusa zanklon*, a survey shall be carried out to monitor the establishment and effectiveness of the measures for the endemic *S. zanklon* community in the translocated site.
- 1.1.3 The post-translocation monitoring methodology shall be in accordance with the approved Revised Translocation Proposal for the Endemic Freshwater Crab *Somanniathelphusa zanklon* (NENTX-FUG-RP-E-EM-I01 Revised Translocation Proposal) (the "approved Proposal"). The approved Proposal was agreed upon with the Environmental Protection Department (EPD) and Agriculture, Fisheries and Conservation Department (AFCD).
- 1.1.4 The NENTX Design-Build-Operate (DBO) Contractor, on behalf of EPD/LDG, is responsible for carrying out the post-translocation monitoring works in accordance with the approved Proposal.
- 1.1.5 The NENTX DBO contract was awarded to Veolia Environmental Services Hong Kong Ltd. (Veolia) and Fugro Technical Services Limited (Fugro) was appointed by Veolia to implement the post-translocation monitoring works in accordance with the approved Proposal.

## 1.2 Purpose of this Document

- 1.2.1 This Post-Translocation Monitoring Report for the Endemic Freshwater Crab *Somanniathelphusa zanklon* (the "Report") was prepared to detail the findings of the mark-recapture post-translocation activities in fulfilment of Section 4 of the approved Proposal, FEP conditions 2.6 and 2.8, and Conditions of EIAR Approval No. 4 for the NENTX Project.

## 1.3 Structure of the Report

- 1.3.1 Succeeding this Section 1 Introduction, the remainder of this Report is presented as follows:
- Section 2 details the methodology of the mark-recapture activity;
  - Section 3 presents the survey results of mark-recapture activity;
  - Section 4 details the post-translocation monitoring schedule; and
  - Section 5 presents the summary and conclusion.

## 2. Mark-Recapture Methodology

2.1.1 This section presents the methodology and approach of the post-translocation mark-recapture monitoring in accordance with Section 4 of the approved Proposal; and in fulfilment of FEP conditions 2.6 and 2.8 and Conditions of EIAR Approval No. 4 for the NENTX Project.

### 2.2 The Monitoring Area

2.2.1 The Recipient Site (the “Monitoring Area”) (**Appendix A**) is the site where the eight individuals of *S. zanklon* were translocated during capture-translocation surveys conducted from 21 to 24 July 2022.

2.2.2 The Monitoring Area is located at the middle section of Ping Yuen River tributary, and adjacent to Ping Yuen Road, to the north of Ping Yeung Village. In this tributary, *S. zanklon* was previously recorded during the approved EIA studies (i.e., EIA-133/2007 and EIA-190/2010) (ERM, 2022) suggesting that this watercourse is suitable for *S. zanklon*.

2.2.3 Although channelisation features (e.g., concrete bank and gabions) and an inflatable water dam are present about 100m to the east, the monitoring area is still considered largely natural with a low gradient and low water flow (see **Photo 2.1**). The streambed is mainly covered by soil and stream banks are vegetated with grass. This area meets the habitat requirements of the species. The soft soil stream substrate and the availability of riparian vegetation are ideal for *S. zanklon* to create microhabitat to inhabit. In addition, the natural meander would also reduce the water flow, which is preferred by the *S. zanklon*. It is anticipated that pollution or disturbance would be in a low level in this section, considering there is limited roads and houses (and therefore limited human activities) until the stream reaches Kan Tau Wai and Tong Fong along Ping Che Road.



Photo 2.1: Section of the monitoring area with low gradient and low water flow



## 2.3 Personnel

- 2.3.1 The post-translocation monitoring survey team was led by a qualified ecologist with minimum of five years of experience in aquatic ecology or other related experience as accepted by AFCD and EPD. In particular, the survey team leader has the experience in surveys of *S. zanklon*.

## 2.4 Mark-Recapture Activity

- 2.4.1.1 The twelfth mark-recapture activity was conducted on 12th July 2023 during night-time period. Hand netting and kick sampling in the monitoring area were conducted. In addition, direct observation was also conducted along the stream riparian zone to search for *S. zanklon* in their potential hiding spaces (e.g. under rocks and fallen tree branches). Permit under Cap. 170 was obtained from AFCD before the use of nets to collect freshwater fauna in the streams (Appendix B).

### 2.4.2 Hand Netting

- 2.4.2.1 Hand netting (see **Photo 2.2**) was used to search the potential habitats along the watercourse. The sweeping motion of the hand netting scraped the layer of the stream bottom substrate into the net, e.g., soil and leaf litter where possible, as *S. zanklon* is likely to be among these substrates. After taking the hand net out of the water, it was allowed to drain, and the net content was emptied on to a large sorting tray. All caught *S. zanklon*, if any, would be carefully moved to a plastic container for marking.



Photo 2.2: Hand netting at a potential habitat (vegetation) along the watercourse



### 2.4.3 Kick-netting

- 2.4.3.1 Kick-netting (see **Photo 2.3**) was done along the watercourse by moving upstream with the net facing the water current. The surveyor disturbed the substrate by kicking the streambed substrate by kicking, such that the *S. zanklon* dislodged from the streambed would be trapped in the net. In order to maximise the survey effort within the stream, the surveyor moved up the stream in a zigzag direction to increase the kick sampling coverage. The net was checked after a maximum of one minute of kick sampling. Additionally, the net was checked more frequently if large amount of substrate was kicked into the net.



Photo 2.3: Surveyor kick-netting the substrate and checking the net's contents

- 2.4.3.2 Similar to hand netting, the net content was emptied on to a large sorting tray. All caught *S. zanklon*, if any, were carefully moved to a plastic container for post-translocation marking.

### 2.4.4 Direct Observation

Direct observation (see **Photo 2.4**) to search for *S. zanklon* in their potential hiding spaces was also conducted.



Photo 2.4: Surveyor searching for *S. zanklon* on potential hiding space (under vegetation and rocks) along the watercourse

## 2.4.5 Marking

All captured *S. zanklon* individuals would be marked prior to releasing them back to the monitoring area. The marker would be an epoxy-resin based paint (Jotamastic Wintergrade) which contains a metallic component and cures in contact with water. Earlier laboratory and field trials had established that crab survival and behaviour was unaffected by paint marking on the carapace and that the marks persisted in field conditions (Eaton et. al., 2001). Recaptures, if any, would be re-marked with black numerals to indicate the month of capture.

## 3. Survey Results

3.1.1 There was no *S. zanklon* individual that was recaptured nor marked during the monitoring period (**Appendix C**). Moreover, the vegetation of the survey area has regrown since the last survey. The lack of recaptured individuals could be attributed to the thick vegetation providing cover for the individuals. The individuals could have hid within the thick vegetation, making them very hard to discover. Moreover, the individuals could have relocated to different areas in search for food and habitats. The survey area had been extended even further downstream in effort to capture the individuals. However, still no individuals were recaptured.



Photo 3.1: Site photos the monitoring area (vegetation)



Photo 3.2: Site photos the monitoring area further down stream



## 4. Post-translocation Monitoring Schedule and Area

- 4.1.1 This monitoring is the final monitoring according to the project proposal. No further post-translocation monitoring will be conducted to monitor the establishment and effectiveness of the measures for *S. zanklon* community in the translocated site.
- 4.1.2 Despite that the survey area had been extended further downstream multiple times in effort to discover relocated individuals, no individuals of *S. zanklon* have been recaptured.

## 5. Summary and Conclusion

- 5.1.1 No *S. zanklon* individual was recaptured nor marked throughout the monitoring period. The results could be due multiple reasons. Such as, the Severe Tropical Storm Ma-on last 24 August 2022 (HKO, 2022), which happened shortly after the translocation of the *S. zanklon* individuals. Also, the thick vegetation in the monitoring area provided lots of hiding places for the individuals. Moreover, the individuals may have previously relocated to a different area in search for food and habitats. Therefore, the survey area had been extended further downstream multiple times in effort to search for possibly resettled *S. zanklon* individuals. Despite the increased effort, still no *S. zanklon* individuals were recaptured.

## 6. References

- Eaton, D.R., J.T. Addison, S.P. Milligan, J. Brown and L.J. Fernand. 2001. Larvae surveys of edible crab (*Cancer pagurus*) off the east coast of England: implications for stock structure and management. ICES CM 2001/J:14. 10pp.
- ERM. 2022. Aquatic Fauna Survey Findings included in previous Translocation Proposal (version 4.0).
- Hong Kong Observatory (HKO). 2022.  
[https://www.hko.gov.hk/en/wxinfo/climat/warndb/warndb1.shtml?opt=1&sgnl=1.or.higher&start\\_ym=202208&end\\_ym=202208&submit=Submit+Query](https://www.hko.gov.hk/en/wxinfo/climat/warndb/warndb1.shtml?opt=1&sgnl=1.or.higher&start_ym=202208&end_ym=202208&submit=Submit+Query)
- Stanton, D.J. and Leven, M.R. (2016) "Distribution, habitat utilisation and conservation status of the freshwater crab, *Somanniathelphusa Zanklon* Ng & Dudgeon, 1992 (crustacea: Brachyura: Gecarcinucidae) endemic to Hong Kong," *Journal of Threatened Taxa*, 8(3), p. 8564.

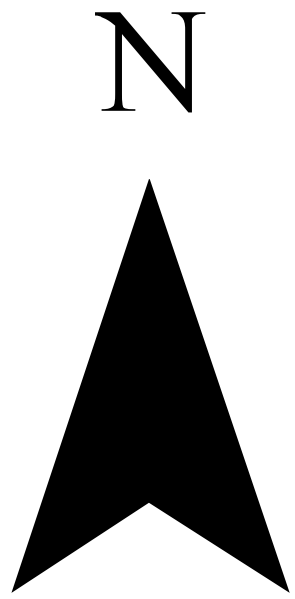
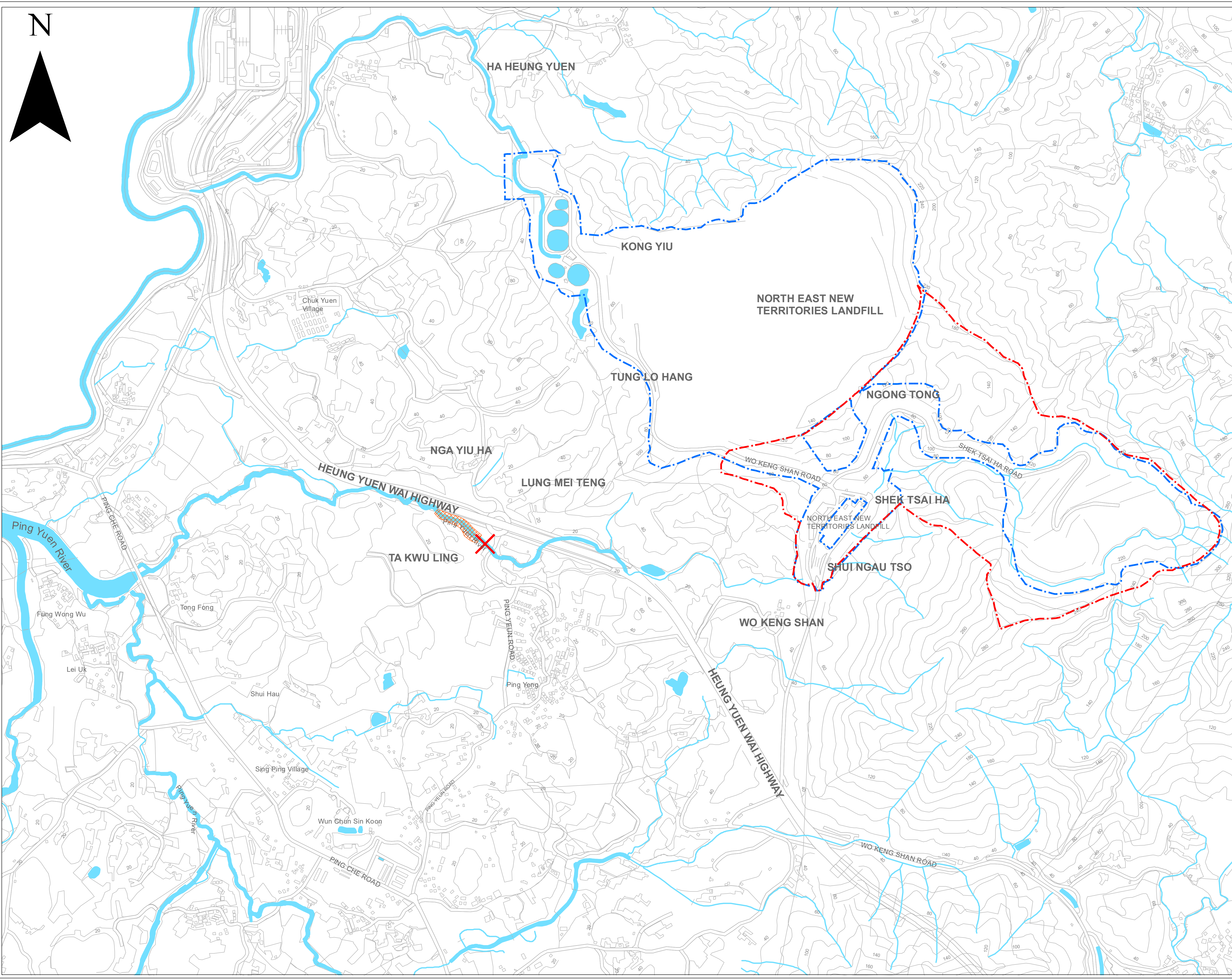


# Appendix A

---




## Monitoring Area





Legend

-  Recipient Site
-  Survey Area Extension
-  NENT Landfill Extension (NENTX)
-  Existing NENT Landfill
-  Hydrographic features

No.	Date	Description	Designed	Checked
Name			Date	
Drawn	SMR		29 MAY 2023	
Checked	FMN		29 MAY 2023	
Project No.				
0092-22				
Project Title				
NORTHEAST NEW TERRITORIES LANDFILL EXTENSION (NENTX)				
Figure title				
Recipient Site (outside NENTX) for the Endemic Freshwater Crab Somanniathelphusa zanklon				
Drawing No.	Revision	Scale		
0092-22/002	5	<div><div>03060120</div><div>Meters</div></div>		
Client				
<div><div></div><div><b>VEOLIA</b> VEOLIA ENVIRONMENTAL SERVICES HONG KONG LTD.</div></div>				
Environmental Team				
<div><div></div><div><b>aurecon</b> AURECON HONG KONG LTD.</div></div>				
Sub-consultant				
<div><div></div><div><b>FUGRO</b> FUGRO TECHNICAL SERVICES LIMITED</div></div>				



# Appendix B

Special Permit under Cap. 170



漁農自然護理署  
長沙灣道 303 號  
長沙灣政府合署 7 樓



AGRICULTURE, FISHERIES AND  
CONSERVATION DEPARTMENT  
Cheung Sha Wan Government Offices  
303 Cheung Sha Wan Road, 7<sup>th</sup> Floor  
Kowloon, Hong Kong.

**By registered mail**

本處檔號 OUR REF.: (83) in AF GR CON 09/50 pt. 38  
來函檔號 YOUR REF.:  
電話 TEL NO.: 2150 6921  
電郵地址 E-mail Address: tony\_kt\_chan@afcd.gov.hk  
圖文傳真 Faxline No.: 2377 4427

27 September 2022

Fenelyn Nabuab  
Fugro Technical Services Limited,  
13/F, Fugro House – KCC2,  
1 Kwai On Road,  
Kwai Chung, NT, Hong Kong

Dear Fenelyn Nabuab,

**Permission to Possess Hand Nets for the Surveys of Aquatic Fauna**

Thank you for your emails of 19 and 22 September 2022.

I enclose a permit for your retention. You are requested to observe the conditions of the permit. Please contact the undersigned should you have any queries.

Yours sincerely,

(K. T. CHAN)

for Director of Agriculture, Fisheries and Conservation

Encl.

覆函請寄交「漁農自然護理署署長」

Please address all replies to Director of Agriculture, Fisheries and Conservation

漁農自然護理署  
九龍長沙灣道三〇三號  
長沙灣政府合署五樓



覆函請寄交  
「漁農自然護理署署長」  
Please address all replies to  
Director of Agriculture, Fisheries and Conservation

AGRICULTURE, FISHERIES AND  
CONSERVATION DEPARTMENT

Cheung Sha Wan Government Offices  
5<sup>th</sup> floor, 303 Cheung Sha Wan Road  
Kowloon, Hong Kong

本署檔號 Our Ref. : (112) in AF GR CON 09/51 Pt.8  
來函檔號 Your Ref. :  
電話 Tel. No. : / For enquiries: 2150 6921  
電郵地址 E-mail Address : mailbox@afcd.gov.hk  
圖文傳真 Faxline No. : (852) 2311 3731

26 September 2022

**Permission to Possess Hand Nets for the Surveys of Aquatic Fauna**

I hereby give permission to:

**LI, Kwok Shing Ray; BOREGON, Calvin Jay; TAM, Chun Yiu Jacky; TILLO, Jhomar Tillo; YUEN, Lok Hang Andy; RABI, Sheila Marie and NABUAB, Fenelyn of Fugro Technical Services Limited** to possess hand nets to capture freshwater macro-invertebrates for surveys, subject to the conditions on the reverse side of this permit.

The Special Permit is given in accordance with Section 15 of the Wild Animals Protection Ordinance (Cap.170).

This Special Permit expires on **31 July 2023**.

(Chan Kin Fung)

for Director of Agriculture, Fisheries and Conservation

Fenelyn NABUAB  
Fugro Technical Services Limited  
13/F, Fugro House – KCC2,  
1 Kwai On Road,  
Kwai Chung, N.T.  
Hong Kong

### **Conditions of Permission to Possess Hand Nets for the Surveys of Aquatic Fauna**

1. This permission is limited to the possession of hand nets by LI, Kwok Shing Ray; BOREGON, Calvin Jay; TAM, Chun Yiu Jacky; TILLO, Jhomar Tillo; YUEN, Lok Hang Andy; RABI, Sheila Marie and NABUAB, Fenelyn of Fugro Technical Services Limited to capture freshwater macro-invertebrates for surveys at Ta Kwu Ling under the project “*North East New Territories Landfill Extension*” (Contract No. EP/SP/77/15) as proposed to this department on 19 and 22 September 2022.
2. This permission does not exempt the permit holders from having to acquire any other necessary permission under the Laws of Hong Kong.
3. This permission does not authorise the entry to any leased land or licensed area or the collection or disturbance of the flora or fauna therein, in which case the prior approval of the lessees or the licence holders would be necessary.
4. The permit holders shall release the captured target species at the capture localities immediately after marking and identification.
5. The permit holders shall handle the animals humanely and in a manner that will avoid their suffering.
6. The permit holders shall produce a copy of this permit for inspection on demand by any officer of this Department or police officer.
7. The permit holders shall provide a report on the location, quantity and species of specimens surveyed to this Department upon request.
8. The Director of Agriculture, Fisheries and Conservation reserves the right to recall or cancel this permission at any time.

\* End of Conditions \*

September 2022  
Agriculture, Fisheries and Conservation Department



# Appendix C

## Fieldwork Datasheet

[illegible]